

Remarks/Arguments

Claims 1-3, 16-18, 20-22, 24-26, and 35-102 are pending in the application. Claims 24-26 and 35-102 are withdrawn. Claims 1-3, 16-18, and 20-22 are rejected.

The Examiner has objected to the title of the invention and has required a new title that is more clearly indicative of the invention. Applicant has amended the title to be for descriptive as required by the Examiner.

Claim 20 has been amended to overcome the objections raised by the Examiner.

Claims 1-3, 16, 17, and 20-22 have been rejected under 35 U.S.C. 102(b) as being unpatentable in view of Flagle. The Examiner states that Flagle in Figure 2 discloses a color television system with the same apparatus as claimed for compensating differential picture brightness of an optical image due to uneven illumination comprising device 83 to produce a video signal 84 representing an optical image having substantially uniform brightness. The Examiner further states that Flagle discloses an adder 40 operatively coupled to the compensating signal generating device and a video signal for adding the sawtooth waveform, the parabolic waveform and the video signal to produce an output video signal to a video signal processor to adjust its gain both vertically and horizontally with a control device operatively coupled to the adder to increase the brightness of the compensating signal to a level greater than the average of the differential brightness of the optical image due to the uneven

illumination. Flagle is directed to a color television system and the shading circuit of Flagle is not capable or adaptable for use with an endoscope as claimed. Flagle describes in column 4, lines 66-73 that device 83 is a vidicon shading circuit adapted to receive signals from the deflection drive circuit and from the vertical and horizontal drive circuits and to process the same and provide correction signals on the line 84. The vertical and horizontal drive circuits 71 and 72 receive outputs from the vertical and horizontal oscillators 66 and 67. The output of the vertical and horizontal drive circuits 71 and 72 is applied to the deflection drive circuit associated

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with the deflection yoke (not shown) of the camera tube 17 to appropriately scan the camera tube electron beam to generate the field signals appearing at the target 34 as described in column 4, lines 4-10. The vertical drive circuit 71 and horizontal drive circuit 72 are applied to the blanking adder 73 adapted to blank the electron beam of the camera tube 17 during vertical and horizontal retrace as described in column 4, lines 10-13.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). As discussed above it is seen that the shading circuit 83 of Flagle compensates for the variations in the operating characteristics of the vidicon tube itself. The sawtooth wave generator and parabolic wave generator are used to generate a compensating signal to correct deficiencies introduced into or added into the video signal by the vidicon tube itself. The vidicon shading circuit 83 of Flagle does not correct for differential picture brightness of an optical image due to uneven illumination from an optical instrument imaged onto a vidicon tube or sensor as required by independent claims 1, 16, and 20.

The present invention provides compensation for uneven illumination from a light source used to illuminate an interior body cavity or interior body space. Such interior body spaces are ~~difficult to illuminate to produce an optical image that can be satisfactorily imaged by a video~~ camera or video sensor. In order for a sufficient optical image to be imaged by a video camera or video sensor it is necessary to utilize a light source having high levels of illumination. Such light sources generate light energy having a peaked characteristic curve with a central bright spot and a dim peripheral edge. The optical image reproduces the characteristic curve of the light source resulting in an optical image having a differential picture brightness due to uneven or non-uniform illumination. Independent claims 1, 16, and 20 recite an apparatus for compensating differential picture brightness of an optical image due to uneven illumination from

an endoscope imaged onto a video camera (claims 1 and 16) or onto a video sensor (claim 20) (emphasis added). Flagle fails to disclose such an apparatus. Flagle is directed to a color television system in which shading is of particular importance since variations may cause loss of color balance between areas of the television system. As pointed out above, Flagle utilizes a vidicon shading circuit that compensates for the variations in the operating characteristics of the vidicon tube. Flagle does not disclose a device for generating a compensating signal substantially representing at least one parameter of a compensating waveform required for the differential picture brightness of an optical image to produce a video signal representing an optical image having a substantially uniform brightness and a logic device (claims 1 and 16) or adder (claim 20) operatively coupled to the compensating signal as is required by claims 1, 16, and 20. Applicants respectfully request that the rejection of claims 1-3, 16, 17, and 20-22 in view of Flagle be withdrawn.

Claims 1-3, 16, 17, and 20-22 have been rejected under 35 U.S.C. 102(a) as being unpatentable in view of Applicants' admitted prior art. The Examiner states that pages 2-7 of Applicants' application under the heading Description of the Prior Art discloses the apparatus as claimed. However, Applicants respectfully request that the Examiner reconsider his position. Pages 2-4 of Applicants' application describe the problems associated with prior art optical instruments used to generate optical images and especially those optical instruments utilized with medical instruments such as endoscopes. The problem with such devices, as most clearly described on page 4 of Applicants' application, is that when an optical instrument is used in combination with a light guide or distally located illumination source, the resulting optical image from the optical instrument has differential picture brightness due to uneven illumination at the distal end thereof. The last paragraph of page 4 describes that one failed attempt to overcome this problem included modifying the structure and characteristics of the light guide, the optical image transferring system or member or modify both. Page 5 of this application describes that

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the primary cause for the differential picture brightness is the light source and that unsuccessful attempts have been made to design or modify the light source to reduce or eliminate the above described deficiencies. Pages 5-7 describe that, in addition to the problems of differential picture brightness, some prior art devices introduce shading into a video signal to vary operating characteristics of a video sensor or video camera that generate the video signals representing optical images. Applicants identify specific prior art devices and further point out that these devices are directed to correction of shading associated with inherent deficiencies in either or both the imaging performance of video cameras or sensors. However, none of the described prior art discuss correcting differential picture brightness of an optical image due to uneven illumination from an optical instrument imaged onto a video tube or sensor. Therefore, Applicant respectfully requests that the rejection of claims 1-3, 16, 17, and 20-22 in view of Applicant's admitted prior art be withdrawn.

Claim 18 has been rejected under 35 U.S.C. 103(a) as being unpatentable in view of Flagle and Topper et al. The Examiner states that Flagle discloses a device as claimed except for an amplifier and that Topper et al discloses a video driver amplifier operatively coupled to an adder. The Examiner then discusses modifying the analog system of Flagle to be upgraded as a digital apparatus by simply utilizing an A/D converter to convert the camera output to include the same digital camera means and competitive processing equipment as specified in claims 8, 11-15, 31, and 33. The Examiner's rejection is not understood. Claims 8, 11-15, 31, and 33 have been cancelled and are no longer pending in this application. In order to adequately respond, Applicants respectfully request that the Examiner clarify his position and more clearly set forth the status of claim 18 regarding Flagle and Topper et al. In any event, the deficiencies of Flagle are discussed above and are equally applicable here. Topper et al is discussed on page 9 of Applicants' application as being directed to detecting and compensating for white shading errors in a digitized video signal using a flat white calibration target. Thus, Topper et al

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is not directed to an apparatus for compensating differential picture brightness of an optical image due to uneven illumination from an endoscope imaged onto a video camera (claims 1 and 16) or onto a video sensor (claim 20).

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The Examiner has not indicated where in either Flagle or Topper et al there exists any suggestion or motivation to combine their teachings in order to arrive at the claimed subject matter. Applicants respectfully submit that there is no suggestion or motivation to combine the teachings of Flagle and Topper et al. Applicants further submit that there is no reasonable expectation of success of arriving at the claimed subject matter by combining Flagle and Topper et al since the combination would not result in an apparatus for compensating differential picture brightness of an optical image due to uneven illumination from an endoscope imaged onto a video camera (claims 1 and 16) or onto a video sensor (claim 20). Finally, the combination of Flagle and Topper et al do not teach or suggest all the claim limitations since neither Flagle nor Topper et al disclose an apparatus for compensating differential picture brightness of an optical image due to uneven illumination from an endoscope imaged onto a video camera (claims 1 and 16) or onto a video sensor (claim 20). Applicants respectfully request that the Examiner withdraw the rejection of claim 18 in view of the combination of Flagle and Topper et al.

Claim 18 has been rejected under 35 U.S.C. 103(a) as being unpatentable in view of Applicants' admitted prior art and Topper et al. The Examiner states that Applicants' admitted prior art differs from the present invention in that it fails to particularly disclose an amplifier as recited in claim 18. The Examiner further states that Topper et al discloses a video driver amplifier operatively coupled to an adder and that it would have been obvious to modify the differential picture brightness compensating system of Applicants' admitted prior art to include the well known video driver amplifier of Topper et al in order to apply subsequent compensation to the video signal processor, since video compensation at a low impedance is a necessary and well known technique for many video systems. The deficiencies of both Applicants' admitted prior art and Topper et al have been discussed above and need not be repeated here. Therefore, Applicant respectfully submits that the Examiner has not set forth the three required criteria for establishing a *prima facie* case of obviousness as discussed above. The Examiner has not indicated where in either Applicants' admitted prior art or Topper et al there exists a suggestion or motivation to make the proposed combination. In view of the deficiencies of both the prior art described by Applicant and Topper et al as discussed above the Examiner's proposed combination does not present a reasonable expectation of success. Finally, for reasons pointed out above, the combination of prior art described by Applicant and Topper et al do not teach or suggest all the claim limitations.

Claims 1-3, 16-18, and 20-22 have been rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 2 of U.S. Patent No. 6,100,920 (Miller et al). Miller et al is the patent resulting from the parent application from which this application claims priority. The Examiner merely states that although the conflicting claims are not identical, they are not patentably distinct from each other because the claims in this application are broader than claims 1 and 2 of Miller et al. However, the Examiner has not fully explained his position. The MPEP §804 sets forth that the analysis employed in an

obviousness-type double the guidelines for analysis of a 35 U.S.C. 103 rejection obviousness determination. See *Ell Lilly & Co. v. Barr Labs., Inc.*, 251 F.3d 955, 58 USPQ2d 1865 (Fed. Cir. 2001); *Ex patenting rejection parallels parte Davis*, 56 USPQ2d 1434, 1435-36 (Bd. Pat. App. & Inter. 2000). Since the Examiner did not provide the required analysis Applicant is unclear how to respond. Applicant respectfully requests that the Examiner provide a full explanation of his position or withdraw the rejection.

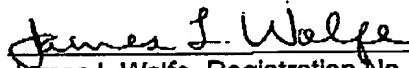
In view of the foregoing reasons for distinguishing over the cited references, Applicant has not raised other possible grounds for traversing the rejections, and therefore nothing herein should be deemed as acquiescence in any rejection or waiver of arguments not expressed herein.

#### CONCLUSION

Applicant submits that in view of the foregoing amendments, the application is in condition for allowance, and favorable action is respectfully requested. The Commissioner is hereby authorized to charge any fees, including extension fees, which may be required, or credit any overpayments, to Deposit Account No. 50-1001.

Respectfully submitted,

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